

The nidification of some common Indian Birds—Part 12

BY

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12. THE KOEL [*Eudynamys scolopacea* (Linn.)]

INTRODUCTION

The inclusion of the Koel, *Eudynamys scolopacea* (Linn.), in the nidification series, I am afraid, is rather inappropriate as the Koel never builds a nest being a brood parasite. The Koel, for this purpose has selected the most intelligent of the Corvidae and perhaps the most devoted of avian parents the House Crow, *Corvus splendens* Vieillot. Not infrequently it cuckolded the not so bright first cousin, the Jungle Crow, *Corvus macrorhynchos* Wagler and occasionally its distant kin the Magpie, *Pica rustica* (Harrington 1904). Instances are also on record when it made use of the nest of the Common Myna, *Acridotheres tristis* (Linn.) (Inglis 1908 : 681); Golden Oriole, *Oriolus oriolus* (Linnaeus) (D'Abreu 1927); Black Drongo, *Dicrurus adsimilis* (Bechstein) (Smith 1952) and Starling, *Gracupica* (Baker 1927).

Breeding season.

The breeding season of the Koel, for obvious reasons, coincides with that of the House Crow, throughout the country. In fact it starts a little early when most House Crows are still at the nest building stage and some sluggish Jungle Crows are still laying. It is these tardy Jungle Crows that get cuckolded. The breeding seasons of the two species of crows have already been described at length elsewhere (Lamba 1963, 1965). Broadly speaking the breeding season of the Koel is from May to July, beginning a little early in southern India and ending a little late in northern India.

At Poona where the present study was undertaken the Koel lays mostly in the months of May and June. Fresh eggs were taken from the nests of the Jungle Crow, as early as 19 April and from the nests of House Crow, as late as 1st July. Instances of courtship display, pair formation and copulation were observed as early as the first week of April.

Territory.

Early in the breeding season the male, apparently, establishes a territory in a promising patch of trees abounding in crows and announces it by its lusty song. The female, in response to the call visits the territory and stays on, presumably, if she happens to like it. This territory is defended by both but with different consequences. Any trespassing/visiting female is welcomed by the male. The female on the other hand greatly resents such visitors and never fails to see it off the area. Whereas a visiting male is given all encouragement by the female. The male, however, immediately asserts its ownership of the area. Even the unmated males defend their established territory against any male intruder. It is quite usual for a number of unmated males who presumably could not establish or hold their territories to spend time together in a single large tree.

Defence.

The male when defending the territory gradually approaches its adversary, hopping from twig to twig, calling loudly and displaying its threatening posture. The threatening display consists of slight spreading of the wings and shaking them, jerking the head in a stabbing movement and flicking and waving the tail. The intruder too strikes a similar posture and calls back without giving ground. When they are within striking distance beaks are used as the main weapons of offence and defence. The stabbing jabs are interspersed with loud, presumably, threatening calls. The duel goes on for minutes together, the length depending upon the tenacity of the intruder or the ferocity of the defender and ends only with the withdrawal of one of the combatants, usually the intruder. The retreating trespasser is normally chased out of the territory.

The female's method of defending the territory, is about the same as that of the male, but never becomes as violent as between fighting males. After a while the trespassing female gets bored and leaves. The trespassing female may or may not be chased by the female but is more often than not chased by the male if he happens to be around perhaps for entirely different reasons.

Pair formation.

To all appearances the koels pair only for the breeding season and that too not very seriously. As has been described, others of the opposite sex are courted and copulated with by both. This behaviour of the koel has often been commented upon (Dharmakumarsinhji 1954 ; MacDonald 1960). The courtship consists of the male chasing the female, both calling. The chase often ends up in the female surrendering on a branch of a tree. She is often fed by the male after every coition, occasionally even before the act. The copulation is done in the normal bird fashion

always in the branches of trees, sometimes even in the vicinity of a crow's nest under construction (MacDonald 1960 : 130).

Egg laying.

The egg or eggs are laid in the nest of host species at a comparatively early stage, when the host has just started laying. During the course of this study it was observed that (i) out of twenty-one crow's nests a koel managed to lay in sixteen nests her first egg after the crow had laid one, in three nests after the crow had laid two and in two nests after the crow had laid three. (ii) In three nests of the Jungle Crow, the koel laid her first egg after the crow had laid its first. No koel's egg was seen in a freshly completed crow's nest, not containing an egg of the owner. From various observations it is surmised that the female koel keeps an eye on the progress of the nest or nests of crows in her territory. She takes her cue for laying from the commencement of incubation by crows who are in the habit of starting to brood as soon as the first egg is laid. Thereafter she lays her egg at the first possible opportunity. If she is lucky to get a break within first twenty-four hours of her observation of the brooding crow she manages to lay after the crow has laid her first egg, otherwise after the second or third.

Clutch size.

I have personally never come across more than three Koel's eggs (of a single type presumably the product of a single bird) in a nest of the host species and hence I am inclined to believe that normally two and not more than three eggs are laid by a single female koel, at least in a nest of the hosts. Some previous workers, however, did come across as many as seven (Jacob 1915), eleven (Abdulali 1931) and thirteen (Jones 1916 ; Baker 1934) koel's eggs of two or three distinct types (presumably the product of as many birds) in a single crow's nest, out of which a maximum of five (all of one type) have been assumed (Jacob 1915) to be the product of a single female.

Laying method.

Dewar (1906) believed that the male and female Koel employed a well planned subterfuge to lay in the nest of the vigilant house crow. Since then numerous other workers, (Lamba 1963 : 131) have observed a pair of koels flying in different directions when attacked by crows (the male more often than the female being chased by the crows), but were not lucky enough like Dharmakumarsinhji (1954 : 136) to observe the female koel slipping into the crow's nest when the owners were busy chasing the male accepted this theory on circumstantial evidence.

In May 1966, I made an observation which made me seriously doubt

the earlier theory. During observations on incubating house crows at Poona in 1953-55, I had observed that the female sat on the eggs throughout the night while the male roosted in the same or a nearby tree. The female left the nest at the first hint of light from the east. After leaving the nest she usually perched at the top or on an outside branch of the nest tree or a nearby tree, preening her feathers, and patiently waiting for her mate to show up. In 1966 I repeated similar observations on the Jungle Crow. On 3 May 1966, while observing a Jungle Crow's nest at Gul Tekdi, Poona, at dawn I saw a shadowy form slip into the nest soon after the female left it to perch at the top of the nesting tree. As the visibility was poor I took it to be the male crow taking up his duty. However, a careful scrutiny revealed a much longer tail projecting out of the nest, and a full view of a female koel leaving the nest. I had had this particular nest under observation for the previous fifteen days or so and had checked it only the previous day and marked the single egg laid on 2nd morning. Being greatly excited by what I had seen I checked the nest again and found a freshly laid (still warm, in fact warmer than the crow's egg) koel's egg lying next to the previously marked crow's egg. The incident posed a number of questions. (i) Was it a stray incident? or (ii) Was it the usual mode and time of laying? or (iii) Was the dawn laying adopted only in the case of nests of the habitually unsuspecting Jungle Crow? I decided to pursue the matter further by watching fresh House Crow nests (the main host of the koel) in the coming nesting season for similar occurrences. With the breeding season of House Crow closely following that of the Jungle Crow I did not have to wait for long and I saw the same behaviour repeated twice during the breeding season of 1966 in the House Crow's nests but not as smoothly as in the case of the less suspicious and less vigilant Jungle Crow. The house crows, in one instance, detected the koel as she entered their nest and drove her off before she could lay.

The observations coupled with my earlier observations induce me to believe that :—

(1) The koels have no definite and well worked out method to dupe the crows. The female koel takes advantage of every temporary absence or distraction of crows from their nest to lay her egg, making full use of her colour to accomplish the act in the grey light of dawn. She is equally alive to the chances offered by crows while they are actively chasing another koel.

(2) The house crows chase both sexes of koel indiscriminately. My belief is further strengthened by the following facts and reasons :—

(i) Although practically sixty years have passed since the subterfuge theory was first advocated (Dewar 1906 : 219-220)

yet not a single ornithologist, with exception of Dharmakumarsinhji (1954 : 136), who mentions seeing a 'pair of crows chasing a male koel while the female entered the nest' but does not confirm if they (koels) were of a pair, has been able to confirm it by observation.

- (ii) The subterfuge theory takes it for granted that the House Crow distinguishes by sight the male Koel without enumerating any reasons, presumably assigning it to instinct. This does not explain how the female koels get so often (Hume 1890 : 393 ; Anderson in Hume 1890 : 394 ; Butler in Hume 1890 : 395 ; Dharmakumarsinhji 1954 : 136 ; MacDonald 1960 : 131 ; Lamba 1963 : 131) assaulted by house crows or how the jungle crows who do not go after the koels get cuckolded? I do not think that it is correct to assume that one species of hosts (House Crow) is thus benefited over another (Jungle Crow). On the other hand this behaviour apparently is due to the inherent alertness of the House Crow (who often catch koels red-handed entering the nest and never forget to chase any, seen afterwards) and a comparative lack of these qualities in the Jungle Crow.
- (iii) The koel becomes active very early in the morning and as birds are generally known to prefer mornings for laying it is only natural for the koel to lay early in the morning. Had the laying been confined to the hours of daylight (crows have to see a koel to give chase) only, the koel should normally have started the day along with the other species of birds and not comparatively earlier.

It has also been suggested by a number of earlier workers that the koel removes one of the crow's eggs at the time of laying its own or subsequently, if it gets the opportunity (Butler in Hume 1890 : 395 ; Dewar 1907 : 781 ; Baker 1934 : 359). Although I have thrice witnessed the actual laying by koels, yet, not even once have I seen the koel removing or destroying any of the crow's eggs at the time of laying her own. The argument that it did not possibly have sufficient time at the time of laying and might have destroyed one or more of crow's eggs afterwards is effectively countered by (i) my subsequent observations of all the three nests where no eggs were missed and (ii) koel's questionable ability to differentiate her own eggs (which she does not even see at the time of laying as she is in an infernal hurry to get away) from that of the crow's at subsequent visits. I am therefore of the view that the koel does not tamper with the contents of crow's nest at the time of laying her egg or subsequently. The disappearance of one or more of crow's eggs from a nest under observation needs some other explanation.

The egg.

The eggs are in shape moderately broad oval, and somewhat compressed towards the smaller end. The shell is fine and glossless in texture. The ground colour varies from pale sea green to dull olive green often with a brownish tinge. They are marked all over with specks, spots, streaks, blotches and clouds of reddish brown, warm brown or purple, more so towards the broader end where the markings sometimes take the form of an undefined cap. The size varies from 28-32 mm. × 22-24 mm. Twenty-one eggs averaged 30·8 × 23·2 mm.

Period of incubation.

The period of incubation for koel's eggs as studied in 12 cases was found to be 13 days, the same as reported previously (Lamba 1963 : 132). Apparently the koel capitalizes on this shorter incubation period, 13 days as compared to 16-17 days of House Crow (Lamba 1963 : 128) and 18-20 days of Jungle Crow (Lamba 1965 : 430). It usually lays after the crow has laid its first egg therefore the young koel is the first to emerge. Even when the koel has been as late to lay as after the crow's third egg the young koel hatches out along with the first of crows, getting a fair chance to compete with the foster parents young.

Fertility.

The fertility in the koel's eggs as studied in 39 cases was found to be cent per cent. Never in my twelve years of experience have I come across a koel's egg that failed to hatch. This absolute fertility is perhaps due to its parasitic habits (survival value). They cannot, obviously, afford to lay infertile eggs in the nests of the hosts for which they have to work so hard and get so meagre an opportunity.

Nestling.

The young koel normally hatches a day or two earlier than the crows'. At emergence it weighs approximately 7 gm. Born naked, the skin is brownish in colour as compared to the pink of the crow fledglings. The eyes are closed. The colour of the beak and claws is the same as that of the body. The tip of the beak and claws are whitish and hard. Once an egg (in advanced stage of incubation) hatched out after it had been kept in a steel almirah for twenty-four hours. The nestling could be heard from inside of the shell approximately four hours before it broke the shell to emerge. At emergence it could emit a weak sound and could raise its neck (when touched) to gape for food.

Care and feeding by fosterers.

The crows start feeding the koel nestling with the zeal and enthusiasm of devoted parents. For the first couple of days it is fed on semi-liquid,

regurgitated food. After about three days the nestlings are able to swallow soft solids. The food comprises mainly of soft bodied animals (caterpillars, worms, centipedes, etc.), kitchen scraps, grains, fruits and similar vegetable matter. Both foster parents bring food for and feed the young koel. The feeding trips are so arranged as to leave one of them in immediate vicinity of the nest to guard against predators. As many as ten feeding trips an hour may be made.

As a result of this assiduous care the young koel grows rapidly and is the healthiest occupant of the crow's nest. By the end of the first week its weight increases seven to eight times the weight at emergence.

By the end of the second week the body weight of the koel nestling increases by twelve times and at the end of the fourth week, when the young koel is ready to leave the nest, it weighs about 120-125 gm. approximately 16-18 times its weight at emergence.

Plumage.

As already stated the young koel is practically devoid of feathers at emergence though a few neossopiles may be discovered on dorsal feather tracts on very minute examination. The contour feathers, remiges and rectrices start piercing the skin by the end of the first week in the form of blunt needle-like structures. By the middle of the second week the ends of these needle like structures, break open into small tufts which gradually elongate into rachis and vane. By the end of the fourth week the young are fully fledged. The sexes can be differentiated by the middle of the second week when the females start showing their dots (above) and bars (below) and their colour remains dark brown. The males on the other hand remain uniform black except for a row of whitish dots across the wing coverts. The general coloration of the fully fledged young is somewhat similar to the adults, but slightly darker in the female nestlings.

Nestling behaviour.

The young koel, unlike other young cuckoos, does not eject the eggs or young of the host species. This fact was recorded as early as 1907 by Dewar who at that time held an enquiry into the parasitic habits of the koel (Dewar 1907). The only unfair advantage the young koel takes is that it emerges a little earlier than its foster brethren and by the time they hatch out it is already big enough to raise its neck oftener and higher to draw the attention of the foster parents as they arrive at the nest with food. The foster parents without making any distinction thrust the food down the nearest gaping mouth. The young koel seems to have an insatiable hunger and goes on greedily devouring a large percentage of the food brought by the crows, depriving the young crows of their share of the much needed food during the critical first week. As a result, all but one, occasionally two, young crows die of starvation when their

parents are fostering a koel. When the number of young koels happens to be two rarely a young crow can manage to survive.

The young koel otherwise lives in amity with the young crow/crows, if any manages to survive, and leaves the nest along with them after about four weeks of nest life. Even after leaving the nest it follows its foster parents from tree to tree demanding food. Although not well adapted for terrestrial movement, it often alights on a stone or boulder to ask for food when the foster parents are feeding on the ground. The procedure for asking food is the same as of the young crows. It can even manage a hoarse caw very much resembling that of the young crow's. When the young koel is going about after its foster parents it also tries to feed itself independently on ficus figs and the like. Presumably it breaks away from the fosterers after it acquires enough self-confidence to feed by itself.

Nestling Mortality.

The nestling mortality is extremely rare in koels. I have never come across a dead koel nestling in a crow's nest. I wonder if any ever die of starvation. Unless, of course, there happen to be more than two or three of them in a single nest and one (or more) of them is (or) rather late to hatch out. In such a case the last to emerge may not have enough opportunity to obtain food from the foster parents and may perish as a consequence. Natural calamities (like accidental fall as a result of storm); interference by small inquisitive boys and disease appear to be the main causes of nestling mortality in koel. I have missed only one koel nestling during the period of study when twenty-one nests containing twenty-four koel fledglings were under observation. The ratio works out roughly to 4.2 per cent.

Parent koel's behaviour.

Apparently the koel, after having laid her egg/eggs in a crow's nest, forgets all about it. She does not make any attempt to feed her own young after they hatch out or subsequently when they finally leave the crow's nest. It is, however, a common belief in Punjab that the koel keeps in the vicinity of the nest in which it has laid and takes charge of its young as soon as it leaves the nest. This belief has, so far, been substantiated by actual observation only by Hume. He (Hume 1890 : 393) writes 'One curious fact remains to be noticed. I have never seen crows feeding fully fledged koels out of the nest, whereas I have repeatedly watched adult female koels feeding young ones of their own species. I am pretty nearly convinced that after laying their eggs the females keep somewhere about the locality and take charge of the young directly they can leave the nests'. I have not come across, so far, an adult female koel feeding a young koel.

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